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ABSTRACT

The paper discusses programs established to assist in the development of handicapped and "at risk" children, with particular interest on the structures of the different programs, the methods of investigating program impact, and the findings of these studies. Following a review of historical bases of early intervention, the author looks at programs which include the Early Training Project (Nashville, Tennessee), the Perry Preschool Project (Ypsilanti, Michigan), and the Sheltering Arms Day School. Among the methods mentioned for studying program impact are pretest-posttest control group design, the secular trend methodology, and the theoretical control group study. Results of previous investigations and variables associated with program success are listed. Detailed is the methodology for a proposed longitudinal study investigating social, physical, and cognitive variables in child progress during intervention through Project KIDS, a program providing training services to parents in addition to children's services. (SB)

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RESEARCH STRATEGIES FOR THE LONGITUDINAL EVALUATION OF HANDICAPPED INFANTS

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Abstract

Research in infant and child development has established that all children follow a specific developmental sequence in acquiring physical, emotional, and cognitive skills. In the emotional/psychological realm, psychoanalytically oriented professionals have postulated that the development of personality is a result of the successful completion of a similar specific developmental sequence (Mordock, 1979). These professionals believed that specific emotional disorders were a result of disruptions at specific periods during the psychological developmental sequence. The concept of a specific sequence has also been demonstrated to exist in cognitive development not only follows a specific sequence from one phase to the next, but that each phase has a specific, invariant sequence itself.

Handicapped children are also active learners (Tjossem, 1976). Like nonhandicapped children, handicapped children follow the same developmental sequence, but their conditions often preclude successful mastery of developmental tasks. The deficits of the handicapped child affect the child's progress in social/emotional areas as well as cognitive ones.

The present paper discusses the programs established to assist in the development of handicapped and "at risk" children. Of particular interest are the structures of the different programs, the methods of investigating program impact, and the findings of these studies. The author also offers an alternative strategy for the longitudinal study of infants served in early intervention programs.

Research Strategies for the Longitudinal Evaluation of Handicapped Infants

Introduction

Research in infant and child development has established that all children follow a specific developmental sequence in acquiring physical, emotional, and cognitive skills. In his series on child development, Gesell (1952) demonstrated that the infant or child must develop certain capabilities of a given skill before he can begin acquisition of a new, related skill. An example of Gesell's premise would be that the infant must develop physical strength and coordination before learning to crawl. In turn, crawling must precede creeping, and both skills must be mastered before learning to walk.

In the emotional/psychological realm, psychoanalytically oriented professionals have postulated that the development of personality is a result of the successful completion of a specific developmental sequence (Mordock, 1979). These professionals believed that specific emotional disorders were a result of disruptions at specific periods during the psychological developmental sequence. As with physical development, it is necessary to complete each stage of the developmental sequence in order to become an adequate, stable adult.

The concept of a specific sequence has also been demonstrated to exist in cognitive development. Piaget (1960) demonstrated that the child's cognitive development not only follows a specific sequence from one phase to the next, but that each phase has a specific, invariant sequence itself. In his theory, Piaget stated that the child is an active learner, and will seek opportunities to act on the environment. By acting on the environment, the infant or child would master the environment through assimilation and accommodation.

Tjossem (1976) concurred with Piagetian theory and stated that handicapped and "at risk" children are also active learners. While the handicapped child would instinctively attempt to follow the same developmental sequence as his nonhandicapped counterpart, his handicap denied him some of the resources available to the normal child. The result of his attempts to act on the environment was often the development of inadequate or inappropriate skills strategies. These behaviors not only made the child different from his nonhandicapped peers, but often precluded preschool and regular education.

Schaefer et al. (1980) and Bricker (1978) both presented evidence that the handicapped or at risk infant does not begin the developmental process equally with the normal infant. The premature infant must first overcome the physical and neurological trauma of premature birth, then "catch up" to the competence level of his gestational age (Schaefer et al., 1980). Similarly, the physically handicapped child must learn to master the developmental process without a complete intact sensory or motor system. The result of such deficits was that the handicapped infant mastered developmental milestones much more slowly than the normal child (Bricker, 1978; Tjossem, 1974).

Mordock (1979) further stated that the limitation of a handicap affected the psychological developmental process. The handicapped child, especially the physically handicapped child, is unable to progress through normal psychosocial developmental processes. Particularly affected are the attachment and separation-individuation phases. The infant does not have the facilities to respond as intensely in the typical mother-infant relationship. Hence, the typical mother-infant relationship would not be adequate to promote appropriate psychosocial development in the infant. The results of an inadequate developmental

process are, among other things, low stress tolerance, attentional deficits, and immaturity, which compound any limitations created by the handicap alone.

The cognitive deficits of handicapped and at risk infants and children have been well-documented (Bronfenbrenner, 1974; Tjossem, 1974; Lazar & Darlington, 1978; Schaefer et al., 1980; Bricker, 1978). These cognitive deficits are often not a direct result of the handicapping condition but rather a product of many indirect factors (Schaefer, et al., 1980; Mordock, 1979). For example, the orthopedically handicapped child should not, because of this handicap, perform poorly on standardized intelligence tests. The physical handicap does not produce limitations that are confined to the child's physical faculties, however. The handicap has made it difficult for the child to develop such concepts as object permanence and conservation. Both of these concepts are critical to abstract thought and problem-solving skills measured by standardized intelligence tests. The development of these two particular concepts is also the basis of attachment and separation-individuation. Hence, the physically handicapped child is deficient in many ways <u>indirectly</u> related to his handicap: (a) he first has a physical limitation, (b) which limits his ability to fully explore and understand his world, and (c) and which therefore impedes the appropriate development of concepts and skills in cognitive and pyschosocial areas.

Physically handicapped children have not been the only group demonstrating developmental deficits. Several authors have demonstrated that children from low socioeconomic backgrounds and from ethnic minority groups have also been overrepresented in special education populations.

There are several hypotheses as to why these groups have demonstrated delayed development. Bronfenbrenner (1974) suggested that typical performance measures (Standford-Binet, WISC, achievement tests) are culturally biased in favor of white, middle-class children and have never tapped the adaptive skills of minority and disadvantaged children. This explanation may be plausible, but cannot account for deficits in motor or language development. Other investigators suggested that the environments of these children did not enhance development, and may in fact have impeded it.

Historical Bases of Early Intervention

During the late 1950's and 1960's several early intervention programs were instituted (Bricker, 1978). These programs, particularly Head Start, were geared toward socioeconomically disadvantaged children. While these programs held great promise, early research indicated that experimental groups sustained gains only so long as intervention lasted. Gains on tests of cognitive ability decreased after intervention until experimental groups were no longer significantly different from controls. Palmer (1977) suggested that these programs did in fact have an impact. However, this impact was not limited to improved cognitive functioning. Rather, the impact was greater in social and motor areas and would not be reflected in standardized cognitive measures.

While initial evaluations of early intervention programs did not indicate that participants made significant gains, many researchers continued to develop and implement programs for these children. Over time, follow-along studies of these programs indicated some benefits in terms of reducing the need of later special services to these children (Lazar & Darlington, 1978). With the advent of Public Law 94-142,

several programs expanded to include handicapped children as well as at risk children. Again, research demonstrated that early services could offset later developmental deficits.

Early studies of intervention services distinguished between two types of programs: home-based individual services, and center-based, group services. This distinction appeared to be a logical one. However, later investigations indicated that the effects of these programs were confounded by another variable: age (Bronfenbrenner, 1974).

Bronfenbrenner (1974) conducted an analysis of several early intervention programs and found that whether a child would benefit from a home-based or center-based program was determined by his age at entry into the program. Those children entering a program as infants derived greater benefits when the program was home-based, providing individual, developmentally appropriate services. Children entering programs at later ages benefitted more from center-based group services.

Another variable was also found to impact program success (Bronfenbrenner, 1974; Lazar & Darlington, 1978). Parent involvement in a child's age-appropriate program could further enhance child progress. Several investigators held that this finding was quite logical in light of normal child development. A normally developing child would typically spend a good deal of his waking time in individual activities with his mother. Later, as the child attained new levels in his development, he would participate in more socially oriented activities, and peers would become more central in his experiences. As a result of these findings, the home-center distinction has given way to a distinction between infant services and preschool services.

Current Trends in Early Intervention

Bronfenbrenner (1974), Lazar and Darlington (1978), and Schaefer et al. (1980) all concluded that the most effective early intervention programs were those which facilitated a normal developmental sequence. In addition to facilitating more normal development, infant programs were found to be most effective when intervention involved the parent as the primary agent of change. Utilizing the parent as the primary change agent not only further enhanced developmental progress but also provided the child with parent-child experiences which were critical to psychological development. Mordock (1979) stated that the immaturity demonstrated by many handicapped and at risk children was a result of inadequate or disrupted parent-child relationships, and hence, disrupted child development.

Programs Developed to Serve the Population

There have been a variety of programs serving handicapped and at risk children and their families. The emphasis of each program varied as a result of the time during which the program originated and new insights that were gained through investigations.

The Early Training Project in Nashville, Tennessee, was implemented in 1961 to serve children who were at risk due to deprived socioeconomic backgrounds (Gray & Klaus, 1970). The program consisted of summer school in which academic skills as well as attitudes toward achievement were emphasized. Progress records were kept through follow-along testing over the three year course of the program, and follow-up testing for three years after program termination.

Those children receiving intervention sustained significant gains over controls during intervention. These participant differences

declined slightly after program termination but remained significantly higher than controls through the third year follow-up testing.

Another program implemented to enhance cognitive development of Spanish-American children from low-income families also found that intervention services were effective (Cornett et al., 1974). A six-year follow-up study indicated that the program also demonstrated long-range impact (Cornett & Askins, 1978). Of 36 children followed, 34 were performing successfully in regular school settings.

The Harlem Research Center found that at risk preschool children served in a seven-week intervention program sustained academic gains over controls through follow-up in the fifth grade (Palmer, 1977). Investigators found that 78% of program participants were at or above grade level, while only 55% of controls were at or above grade level.

The Perry Preschool Project in Ypsilanti, Michigan, is the only program to date which has systematically followed subjects through adolescence. Like most of the early programs, the subjects of this program were economically disadvantaged preschoolers. Initial investigations of student progress revealed that program participants made significant gains over controls, but that these gains were no longer significant one year after program termination (Palmer, 1977). However, by age 15, program participants demonstrated significantly higher academic performance than controls, required fewer special services, and demonstrated fewer behavior problems (Education USA, 1980).

Earlier programs tended to focus on the cognitive development of preschoolers and placed less emphasis on parent involvement. Later programs began attending to other areas of development, the possibility of extending services to younger children, and the importance of parent

involvement. While the degree of family involvement varied, many researchers found that parental involvement, especially with younger children, was extremely effective.

One program involving both a parent and her child was found to be quite successful (Karnes, et al., 1970). In addition to promoting greater interaction between parents and their children, parents also participated in activities designed to increase self-concept and develop more adaptive coping skills.

Both children and their parents benefitted from this program. Children participating in the program obtained significantly higher standardized test scores than did controls. In fact, participating children also obtained significantly higher test scores than their siblings. Mothers participating in the program developed greater self-confidence as evidenced by their increased activity in the parent groups and by their initiated and later increased community involvement.

The Sheltering Arms Day School provided information and support services to parents of retarded children (Warfield, 1975). A survey of participating parents revealed that the parent services had been an important component of the program. Mothers responded that information on retardation had greatly helped them in dealing with their children. Support services had helped parents deal with disruptions in family life as well as with personal feelings regarding the retarded child.

Another early intervention program provided not only parent training, but also included parents as change agents in their children's program (Lynch, 1976). Parent attitudes were assessed at regular intervals during intervention to determine program effectiveness. Parent responses indicated that they became more realistic in their attitudes toward their children and their expectations of them. Observation of

parents revealed increased interactions between them and their children. This increased interaction included increased verbalizations as well as physical activity.

One program dealing only with parents indicated again that child progress can be affected as a result of parent change (Field et al., 1980). This program provided training and support services only to mothers, while providing no direct services to children. As in the Lynch study, parents demonstrated more realistic expectations of their children after intervention, and more realistic child rearing attitudes in general. Children of program participants obtained significantly higher scores on standardized developmental inventories, further suggesting the effectiveness of parent intervention.

Finally, the Project KIDS program has provided training services to parents in addition to children's services. Parent reactions to a recent survey indicated consistently positive reaction toward the program both in terms of their children's progress and the support services which were provided to parents (Mullen et al. 1980).

Methodologies Previously Used in Investigating Early Intervention Programs

Perhaps the most frequently used methodology in studying program impact has been the pretest-posttest control group design (Campbell & Stanley, 1963). Using this method, children are randomly assigned to treatment and control groups, then compared before, during, and following intervention. Investigators of one program added a second control group to mediate the effects of social factors relating to intervention (Gray & Klaus, 1970). To further control for maturational factors, the design was expanded to include a Time Series methodology.

While this method might be ethically used with socioeconomically disadvantaged children, Public Law 94-142 states that services cannot be denied to handicapped children. Hence, any handicapped children who are identified must be offered services, making the practice of using an experimental control group ethically impossible. As a means of ethically dealing with handicapped students and still conducting scientific investigations of program effectiveness, the concept of using each child as his own control was introduced (Tjossem, 1974; Cornett & Askins, 1978; Macy, 1978).

Cornett and Askins (1978) suggested a secular trend methodology, in which a trend line of predicted post-intervention scores was plotted. These expected scores are then compared with observed scores to determine program effectiveness. Results of studies using only this methodology must be considered tentative since there was no comparison to post-test scores when no intervention was provided.

The theoretical control group study does provide a comparison to an identical group which received no treatment (Macy, 1978). Macy developed a method by which a panel of child development experts could predict the the non-intervention developmental progress of each child. The judges demonstrated high interrater reliability using this method.

Bagnato and Neisworth (1980) suggested that, in addition to control group comparisons, the efficiency of the program could be estimated by assessing developmental gains in light of the duration of intervention. Simeonsson and Huntington (1980) believed that behavioral and temperamental gains over the duration of intervention were more indicative of program effectiveness than cognitive gains. Several investigators suggested that anecdotal records could provide sufficient

accurate data to determine program effectiveness. While all these strategies may be useful, the confidence in the findings of studies using only these methods would be tentative.

Results of Previous Investigations

Based on the present review of early intevention programs, several major findings emerge.

1. Early intervention did have a positive effect on development for both "at risk" and handicapped children. Often the gains made by program participants have been sustained for many years.
2. While program impact has not always been manifested in specific academic areas, program effects have been evident in the general academic and social performance of program participants. One such example of program impact has been that of the Perry Preschool Project in which program participants demonstrated better academic performance than controls. The more conspicuous evidence of program impact, however, was in the reduced need of special services later, and reduced incidence of behavior problems of program participants in comparison to controls.
3. Intervention which included the parent greatly enhanced progress already effected by a program. Parent involvement was found to be especially effective in programs with very young children, particularly infants.
4. The effectiveness of a single instructional setting varied as a function of the child's age. Those programs which had demonstrated the greatest success were those which followed and enhanced the normal developmental sequence. Hence, infants derived the most benefit from home-based programs with intense

parent involvement, toddlers benefitted from group-oriented programs which maintained parent involvement, and preschoolers profited from group programs which utilized parent involvement but which introduced academic skills in addition to other developmental activities.

5. While early intervention programs require funds to operate, and require bigger budgets as more services are offered, long-range costs of such programs are low. Several studies have demonstrated that at risk and handicapped children participating in early intervention programs often required fewer school and community services in later years.

Variables Associated with Program Success

Several variables have been identified as significant predictors of child progress, and, hence, program success.

1. Age at entry into the program: typically, younger children derive greater benefit from early intervention programs. This variable is however, related to parent involvement (Bronfenbrenner, 1974).
2. Parent involvement: as parent involvement increased, in terms of direct involvement in the program, so did child progress.
3. Duration of participation: those children participating continuously for more than one year sustained greater gains than those participating for one year or less, or those children participating discontinuously for more than one year (Gray & Klaus, 1970).
4. Number of children per adult: for center-based participants, those in small classes sustain greater gains than those in larger classes (Lazar & Darlington, 1978).

Methodology

Past study has indicated that the deficits experienced by handicapped children result from disruptions of development at many points. Many previous studies have speculated that program impact is manifested in several areas other than cognitive or academic ones. As a result of this speculation, several researchers have called for the investigation of variables relating to other areas of development. Frequently cited among these variables are the social and physical development of the child, and social variables related to the family structure. Among the general hypotheses of program impact are that intervention with the family will result in improved coping skills (with regard to the handicapped child) and improved stability of the family structure as a result of more adaptive coping skills. Once the family experiences fewer disruptions, the child will improve in the areas of social skills development, physical skills development, and cognitive/language skills development.

The proposed study has been designed to address these hypotheses. Social, physical, and cognitive variables will be investigated to determine child progress during the course of intervention. Families will be interviewed annually to assess changes in family structure and stability over the course of intervention. Analysis of these variables will provide a more comprehensive picture of the long-range effects of infant education on non-academic as well as academic development of program participants.

Subjects

The subjects in the longitudinal study data base will be gathered over a course of two years. During the 1981-1982 school year, all

children enrolled after August 24, 1981, and before February 12, 1982, who are less than 24 months of age will be included in the study. These time constraints are necessary to ensure that each child will have had at least two KIDS Inventory administrations during the 1981-1982 school year. This same procedure will be employed during 1982-1983 so that at least 15 students may be included in each of the subject groups.

The subjects will be divided into four groups, defined by their ages upon entry into Project KIDS:

Group A	Birth through 6 months of age at the time of enrollment
Group B	6 months, one day, through 12 months of age at the time of enrollment
Group C	12 months, one day, through 18 months of age at the time of enrollment
Group D	18 months, one day, through 24 months of age at the time of enrollment

Fathers and mothers of the children under study will comprise the second major group investigated. In some instances, grandparents, relatives, or other persons who share in caretaking responsibilities for the child will be included in activities with parents.

Instruments

Several areas of development and intervention will be investigated for child and parent groups. All instruments, their sources, and present purposes are presented in Table 2.

Design and Data Analysis

Table 3 presents a schedule of data collection activities through the completion of three follow-up testings of students after the termination of Project KIDS services. At the time of the third follow-up testing, the approximate age of each student will be 13 to 14 years old. The total time required to follow students will be 16 years.

Table 2

Instruments to be Used For Longitudinal Data Collection
(continued)

Instrument	Source	Purpose
Student Social Characteristics Review (SSCR)	DISD Special Education Research and Evaluation Dallas, Texas 75204	To provide information regarding the social activities in which students participate. Includes extra curricular school activities as well as non-school-related organizations and activities, honors and awards. Also includes reports of antisocial acting out.
Family Model Implementation Review (FMIR)	DISD Special Education Research and Evaluation Dallas, Texas 75204	To provide information regarding the extent of services provided to parents, and the extent to which parents accepted and used these services.
Demographic and Sociological Information (DSI) Survey	DISD, Psychological Services, Dallas Texas, 75204	To provide information regarding the structure and nature of the family.
Family Social Adjustment Review (FSAR)	DISD Special Education Research and Evaluation, Dallas, Texas 75204	To investigate changes in the family structure and stability, and the degree of their coping and social skills.

Table 2

Instruments to be Used For Longitudinal Data Collection

Instrument	Source	Purpose
Student Model Implementation Review (SMIR)	DISD Special Education Research and Evaluation Dallas, Texas 75204	To investigate the extent to which resources of the Project KIDS have been implemented with each child.
Student Educational Services Review (SESR)	DISD Special Education Research and Evaluation Dallas, Texas 75204	To determine the extent of special services needed by the student during years after termination of Project KIDS services.
KIDS Inventory of Development Scale	Project KIDS, DISD Dallas, Texas 75204	To be used in the investigation of developmental progress during Project KIDS intervention. Each of the four subscales will be analyzed separately to determine gains in each area.
Wechsler Intelligence Scale of Children - Revised Edition (WISC-R)	The Psychological Corporation New York, New York 10017	To investigate cognitive ability during follow-up after Project KIDS intervention.
Vineland Social Maturity Scale	American Guidance Service, Inc. Circle Pines, MN 55014	To provide standardized information regarding adaptive social functioning.
Adaptive Behavior Scale (ABS)	American Society on Mental Deficiency Washington, DC 20016	To provide standardized information regarding adaptive social functioning. This instrument is considered to be more reliable and comprehensive than the Vineland; however, the scale does not extend below 6 years of age.

The longitudinal methodology will be considered to have two phases: that time during which students receive Project KIDS services (Phase I), and that time after termination of Project KIDS services beginning at six years of age (Phase II). During Phase I, students will be tested using the KIDS Inventory of Development and the Vineland Social Maturity Scale. As set forth in the Project KIDS Model Implementation Manual, the KIDS Inventory will be administered quarterly to each student by his or her teacher. The Vineland Scale will be administered to parents by either the child's teacher, another trained member of the Project KIDS staff, or a trained member of the KIDS evaluation staff. The Student Model Implementation Review will be used by Project KIDS evaluation staff to survey student records and determine the extent of services provided.

Parents of Project KIDS will also be contacted annually during Phase I of the longitudinal study. In addition to acting as informants for the Vineland Scale, mothers and fathers will be asked to respond to the Family Social Adjustment Review and an attitude change instrument. The Family Model Implementation Review will be used to determine the extent to which family services were provided by Project KIDS staff and accepted by parents.

All data collection activities during Phase I of the study will be conducted annually each May. To summarize, these activities will include collection of KIDS Inventory scores, review of student and family records, and mother and father interviews.

During Phase II, data collection schedules will be staggered according to the different ages of the students. Again, Table 3 depicts the schedule by which Project KIDS "graduates" will be tested. Upon enrollment in grade one, or other education program, students will be

Table 3

Data Collection Schedule
Longitudinal Follow-Along[a]

Group	1981-82	1982-83	1983-84	1984-84	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96
A_1 (0-6 months, 1981-82)	SMIR KIBS Vineland	•	•	•	•	•	•	SESR WISC-R ABS SSCR			Follow-up 1			Follow-up 2	
A_2 (0-6 months, 1982-83)	SMIR KIBS Vineland	•	•	•	•	•	•	•	SESR WISC-R ABS SSCR			Follow-up 1			Follow-up 2
B_1 (6.1-12 months, 1981-82)	SMIR KIBS Vineland	•	•	•	•	•	SESR WISC-R ABS SSCR			Follow-up 1			Follow-up 2		
B_2 (6.1-12 months, 1982-83)	SMIR KIBS Vineland	•	•	•	•	•	SESR WISC-R ABS SSCR			Follow-up 1			Follow-up 2		
C_1 (12.1-18 months, 1981-82)	SMIR KIBS Vineland	•	•	•	•	SESR WISC-R ABS SSCR				Follow-up			Follow-up 2		
C_2 (12.1-18 months, 1982-83)	SMIR KIBS Vineland	•	•	•	•	•	SESR WISC-R ABS SSCR			Follow-up 1				Follow-up 2	
D_1 (18.1-24 months, 1981-82)	SMIR KIBS Vineland	•	•	•	SESR WISC-R ABS SSCR				Follow-up 1			Follow-up 2			
D_2 (18.1-24 months, 1982-83)	SMIR KIBS Vineland	•	•	•	•	SESR WISC-R ABS SSCR				Follow-up 1			Follow-up 2		
	Phase I				Phase II										

KEY: • Data Collection Period
___ Interim period to test
[a]Data collection to be conducted during May of each year indicated
[b]Subjects will be tested in each group

The longitudinal methodology will be considered to have two phases: that time during which students receive Project KIDS services (Phase I), and that time after termination of Project KIDS services beginning at six years of age (Phase II). During Phase I, students will be tested using the KIDS Inventory of Development and the Vineland Social Maturity Scale. As set forth in the Project KIDS Model Implementation Manual, the KIDS Inventory will be administered quarterly to each student by his or her teacher. The Vineland Scale will be administered to parents by either the child's teacher, another trained member of the Project KIDS staff, or a trained member of the KIDS evaluation staff. The Student Model Implementation Review will be used by Project KIDS evaluation staff to survey student records and determine the extent of services provided.

Parents of Project KIDS will also be contacted annually during Phase I of the longitudinal study. In addition to acting as informants for the Vineland Scale, mothers and fathers will be asked to respond to the Family Social Adjustment Review and an attitude change instrument. The Family Model Implementation Review will be used to determine the extent to which family services were provided by Project KIDS staff and accepted by parents.

All data collection activities during Phase I of the study will be conducted annually each May. To summarize, these activities will include collection of KIDS Inventory scores, review of student and family records, and mother and father interviews.

During Phase II, data collection schedules will be staggered according to the different ages of the students. Again, Table 3 depicts the schedule by which Project KIDS "graduates" will be tested. Upon enrollment in grade one, or other education program, students will be

assessed using the Wechsler Intelligence Scale for Children, Revised edition (WISC-R), and the Adaptive Behavior Scale (ABS). School records will be surveyed using the Student Education Services Review (SESR). The SESR is the Phase II counterpart to the SMIR in that it surveys the type and extent of education services provided to the student. The Student Social Characteristics Review (SSCR) will be completed using the students' school records, teacher and family reports.

Mothers and fathers of students will continue to be surveyed using the aforementioned instruments. After the initial Phase II data collection as each child enters grade one, follow-up data collection will be reduced to once every three years and will be conducted in May. For those children receiving special services throughout the period of the longitudinal study, review for special services must be conducted at three-year intervals. Hence, data for these children will be routinely collected by school personnel. Data for students not requiring case review will be collected by Project KIDS evaluation staff.

Discussion

Recent research has indicated that developmental/educational intervention with handicapped infants can and frequently does have far-reaching effects. While several reports support the contention that intervention has as much impact on the child's social/affective development as on his cognitive development, no studies have comprehensively and systematically investigated social/affective outcomes of these program participants.

The proposed study has provided a comprehensive research strategy for the longitudinal study of outcomes in social/affective and cognitive areas. This study will entail an annual follow-along of students during

participation in an infant education program, then three-year follow-up after termination of infant education. Implementation of the proposed research strategy would likely require one full-time professional to supervise data collection and maintain a computerized file of those data.

Few studies published to date have addressed such long-term (sixteen-year) developmental progress of handicapped children who receive intervention services. Certainly no studies have dealt adequately with the non-academic development of these children. If resources could be allocated for implementation, the proposed study would constitute a major contribution to child development disciplines.

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